



Clean Coal Conferences Proposed for Three Countries

Three of the world's largest coal consumers—China, India and the Soviet Union—are considering a proposal to host a series of conferences on environmentally sound coal technologies, organized by CSTD.

The proposed conferences would attempt to define policy issues and options related to clean coal and CO₂ emissions reduction for a report to the United Nations Conference on Environment and Development (Brazil, June 1992) and would assume special importance in the context of the global warming debate. Fossil fuels and especially coal combustion are principal sources of carbon dioxide, sulphur dioxide dust and other pollutants, and all three host countries have a strategic dependence upon coal deposits which is expected to continue far into the next century. How they burn that coal will affect not only domestic air and water quality but the upper atmosphere and rates of global warming as well. There is an urgent need to assess the CO₂ and other pollutant reduction potential of developing countries, and whatever steps these three countries are able to take to clean up their coal-related energy systems could have a significant influence on the way other developing nations approach similar fossil fuel dependencies. China, India and the Soviet



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Union all rely heavily on coal for industrial and household energy needs and do little or nothing to wash it or convert it into potentially cleaner energy products.

China is the world's largest coal user, accounting for 27 per cent of world production. More than 70 per cent of the country's heat and electrical energy is generated from coal. Suspended particulates are a major health hazard in the country's northern cities, where annual sulphur concentrations average 740 micrograms per cubic metre. By contrast, the concentration in the United States is just 50 micrograms. Sulphur dioxide is the main contributor to acid rain.

India and the Soviet Union rely on coal for 38 per cent and 24 per cent of their energy requirements, respectively.

All three countries are interested in:

- improving the efficiency of coal mining, production and use, and cutting their pollution levels;

Protecting the Global Commons

There is an urgent need to step beyond the discussion of global warming to address practical means of cleaning up and protecting the "global commons".

Just how that should be done and who should foot the bill are among the subjects covered in this issue of *Update*, and the ATAS News supplement.

Update reports on the first session of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, and the question of how responsibility should be shared. (See Pg. 5.) ATAS News concentrates on the need for developing countries to base their development choices on Environmentally Sound Technology Assessments (ESTA). ATAS News observes that without a capacity for ESTA the ability of developing countries to respond effectively to environmental concerns will remain limited at best. ■

- Improving their energy management;
- Promoting alternative clean energy sources.

Technologies to achieve these objectives are generally available in industrialized countries but developing countries have considerable difficulty obtaining those technologies and adapting them to their own needs.

Options include coal-conversion technologies such as coal washing and separation, briquette production, gasification and methane synthesis. They also include forms of Fluidized Bed Combustion (FBC), co-generation, advanced systems of energy distribution

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Clean Coal Conferences

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and storage and improved filtration and absorption capacities.

The hope is that each of the proposed conferences would produce a portfolio of clean-up strategies and recommendations to:

- enhance endogenous capacities;
- improve energy efficiency through better management;
- transfer clean coal technologies to China, India and the Soviet Union;
- provide creative means of financing and adapting Western technologies to local needs;
- estimate CO₂ and other pollution reduction potentials;
- comply with international conventions and protocols.

It is also hoped that the results of each meeting would be conveyed to the various national stakeholders for immediate follow-up. There is a possibility also that a round-up meeting following the three conferences would be held in Germany to summarize findings prior to the Brazil Conference.

Climate initiatives

The first World Climate Conference, convened in 1979 by the World Meteorological Organization (WMO), focused on potential man-made changes in climate, and a number of national and international initiatives stressing low-climate-risk energy strategies followed. The Intergovernmental Panel on Climate Change (IPCC) was established by WMO and the United Nations Environment Programme (UNEP) in November 1988 and has been working towards a global climate convention for discussion at the 1992 United Nations Conference on Environment and Development.

In June 1988, the Toronto World Conference on the Changing Atmosphere called for a 20 per cent reduction of fossil carbon dioxide releases by 2005, and for a minimum 50 per cent reduction by 2050. The Enquête Commission of the German Bundestag proposed to last year's Saarbrücken Conference on "Energy in Climate and Development" a weighted approach which would place the greatest burden

of reduction on Western industrialized nations, which historically have been the main polluters.

Participants at Saarbrücken made it clear that strategies to combat the threat of global warming could be effective only if developed and developing countries cooperated in efforts to reduce emissions. Cooperation, they said, would require that poorer countries had access to new and cleaner production technologies as well as the financial and other means to install and operate them. There was general agreement that while today's major polluters had an urgent role to play in global emissions control by switching to cleaner and more efficient technologies, longer-term strategies to halt global warming would ultimately fail if poor and rapidly industrializing nations were left to pursue their development with older and dirtier processes. One early outcome of the Saarbrücken Conference was the decision of China and the other two nations to consider hosting the clean coal conference series. ■

Second Climate Conference

Unless actions are taken to reduce industrial emissions, global warming could range between 2 and 5 degrees Centigrade over the next century—a rate of change unprecedented in the past 10,000 years. It is anticipated that warming to this extent would be accompanied by a disastrous rise of 35 to 65 cm in sea level. Low-lying and coastal zones would be seriously threatened, as would water resources, agriculture, forests and fisheries. In many cases the impact would be most severe in regions already under stress—developing countries in particular.

The Second World Climate Conference held at Geneva late last year called for three main efforts to combat global warming. They are:

- Global measurement and research efforts through the World Climate Programme (WCP), the International Geosphere-Biosphere Programme (IGBP) and related international programmes;
- Continuing assessments and inputs by the Intergovernmental Panel on Cli-

mate Change (IPCC) to a Convention on Climate Change; and

- Development of the Convention itself by 1992—the year of the United Nations Global Conference on Environment and Development.

Scientific and technical sessions of the conference involved 747 participants from 120 countries who concluded that technically feasible and cost-effective opportunities exist to reduce CO₂ emissions in all countries, although developing countries will need special assistance to deal with their emissions effectively.

"It is clear that the developing countries must not go through the evolutionary process of previous industrialization but rather, must leapfrog from underdevelopment to the use of efficient, environmentally benign, technologies", they stated. The conference agreed that a "massive and sustained flow" of scientific and technological expertise to the developing world would be essential to the success of any effort to contain global warming and its consequences. ■

Symposium in Milan

"Environmentally Sound Energy Technologies and their Transfer to Developing and Eastern European Countries" will be the subject of an International Symposium in Milan in July.

A decision by the Italian Government to host the symposium was announced at the first session of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change in Washington (4-14 February). ■

CSTD Seminar

The work of the Alternative Fuels Council and the Role of Alternative Fuels was the subject of a recent CSTD seminar by American Congressman Bill Alexander of Arkansas. Congressman Alexander highlighted the importance of alternative fuels in the light of increasing energy demands and environmental concerns for cleaner fuel options. ■

Africa's Need to Diversify

The dependence of many African economies on a single cash crop or one or two minerals for export has left nations the length and breadth of the continent extremely vulnerable to market factors beyond their control.

Diversification is clearly one essential step towards freeing these economies, but other approaches which will be discussed by policy makers and experts at Abidjan, Côte d'Ivoire (8-12 April) include: the use of new technologies and processes to add value to prime raw crop materials; exploration for new metals and minerals; and steps to preserve and exploit medicinal plants.

The conference will be organized by CSTD and the Africa Development Bank in cooperation with UNIDO and the Economic Commission for Africa, and should be of particular interest to many countries, including Ghana and Côte d'Ivoire (cocoa); Gabon, Nigeria, Libya and Algeria (crude oil); Senegal and the Gambia (peanuts); and Zaïre and Zambia (copper).

Mineral ores

The development of new materials such as metal composites, polymers, glass fibres and ceramics will have a profound impact on mineral exports and on industries which cannot integrate advanced processes into their existing manufacturing plants. The most immediate risk is of declining demand for traditional materials, which should spur such countries as Zaïre and Zambia to look for export substitutes and to widen exploration to include materials needed in microelectronics, photonics, advanced magnetic systems and superconductor industries. These include gallium, indium, arsenic, niobium, zirconium, yttrium, ytterbium and neodymium. Copper prices and demand have been falling for the past decade in response to the replacement of copper wire in telephone communications by fibre optics, as well as recycling efforts in response to environmental concerns.

Close monitoring of current developments and an early assessment of likely impacts would help policy makers to develop national strategies which could take advantage of market opportunities and minimize potential losses.

Cash crops

Cocoa and coffee are classic high-



John Isaac—UN

risk export crops and with the continued development of artificial flavours they are likely to become more risky in the future. The chemical substitution of fruit flavours is itself being replaced by biotechnology which uses genetically manipulated microbes to generate "natural" flavours. Cocoa, coffee and perhaps tea could be future targets. Two options on the table for Abidjan include the development of secondary industries to add value to crop materials. In the case of cocoa this could be the application of simple existing technologies to produce soap, shampoo, body and hair creams and alcohol. Both Ghana and Côte d'Ivoire could produce sufficient soap and creams for their nationals and for most of West Africa, but this has not yet been attempted, even though the bottom has fallen out of the international cocoa trade.

In the case of coffee, between 20 and 30 per cent of the beans produced in countries such as Kenya and Uganda are below standard for human consumption and are discarded. It would be possible, however, to extract caffeine from these beans and export the product for use in the beverage and pharmaceutical industries. Similar processes might also be employed to stabilize the income of growers and nations dependent upon peanut and palm oil.

Given that several African countries share the same export cash crops, an opportunity exists to share the necessary research and development and marketing costs.

Medicinal plants

Traditional medicines based on the use of herbs continue to play an important role in African health-delivery systems, but scientific and clinical research on these products is conducted only in piecemeal fashion in a few countries. Given the rapid degradation of African forest reserves and other sources of biological diversity, there is an urgent need to preserve and develop potentially life-saving herbal based medicines. Once again the pooling of resources, and information sharing, will be crucial to any endeavour to understand the traditional practices associated with such remedies. ■

CSTD Chief Returns to Private Sector

Dr. Sergio C. Trindade has returned to the private sector after five years as Executive Director of the Centre for Science and Technology for Development.

At a farewell reception, the United Nations Director-General for Development and International Economic Co-operation, Dr. Antoine Blanca, praised Dr. Trindade's leadership of the Centre and wished him well in his future endeavours.

Dr. Trindade, a chemical engineering graduate of M.I.T., has held senior positions in management consulting and technology firms in Brazil and the United States. He will be relaunching an international consulting career in energy, the environment and the management of technological change.

He can be contacted at:

6 River Road
Scarsdale, N.Y. 10583, U.S.A.

The Deputy Executive Director of CSTD, Dr. Lutz Baehr, has been appointed to act as Officer-in-Charge of the Centre. ■

Advisory Committee Meets in New York

Environmental management and the S&T capacity of developing nations were the main focus of the United Nations Advisory Committee on Science and Technology for Development at its 11th session in New York (14-18 January). The Committee made a series of recommendations on both issues, which will be considered by the Intergovernmental Committee on Science and Technology for Development at its 11th session (22 April-3 May).

The ACSTD proposed that:

- countries be prepared for surprises along the road to development and adopt resilient strategies for endogenous capacity building;
- intermediary organizations be established to purchase from private sources and facilitate the transfer of environmentally sound technologies to developing countries;
- investments in environmentally sound technologies be evaluated in a global context;
- an international network of research organizations be formed to address the need for environmentally sound technologies;
- the use of environmentally sound technologies could be stimulated by research partnerships between the public and private sectors.

Discussion on S&T approaches to sustainable development centred around the need for nations to "act lo-

cally while thinking globally". Global warming has given urgency to the idea that the environment is humankind's common heritage and something which should be managed and protected accordingly through some form of international regime.

The United Nations has had considerable experience with this concept of a "global commons", through the Vienna Conference on Science and Technology for Development in 1979 and the Law of the Sea Treaty and Montreal Convention in the 1980s. However, according to James K. Sebenius at the Kennedy School of Government, Harvard University, those endeavours were small by comparison with environmental and climatic objectives.

He says that unlike the law of the sea negotiations, which spanned more than a decade, the climate debate would have to focus on means of allocating "sacrifices" rather than benefits and would cover a very wide range of economic activities, including patterns of agriculture, industrial production and consumption, and development itself. If negotiations to produce a Law of the Sea Treaty could be considered a marathon, negotiations for a global environment management regime would be a decathlon, he said.

Mr. Sebenius suggests that a great deal of ingenuity and enthusiasm would be required to address the problems at

issue and to manipulate the interests at stake into mutually satisfying outcomes. However, the ACSTD's report to the Intergovernmental Committee on Science and Technology for Development warns that something must be done, and soon, to bring the developing and developed nations to some accord on the sacrifices which must be made.

The report states: "Given the uncertain prospect of global warming, and the underlying complexity of scientific knowledge at stake, it is most urgent that joint efforts by both the developed and developing countries to expand the knowledge base for rebuilding man-nature relationships and explore the promise of sustainable development, be set in motion. This is crucial if only for further collective legitimization of the problems at issue in the negotiations for a global environment management regime. It is in this perspective that international cooperation in science and technology is emerging at the forefront of the agenda for the forthcoming Global Conference on Environment and Development." (Brazil, 1992)

The report warns that the stakes in this search for an accommodation are high. It notes that the projected rate of greenhouse gas emissions would be some 40 per cent higher by the year 2050 without the cooperation of the developing countries than with it. — ■

New Optic on Warming

The Research Policy Institute (RPI) in Lund, Sweden, has undertaken a new research initiative to examine the broad social and cultural factors affecting the global warming policy process.

The Institute maintains that a heavy emphasis on natural science-oriented programmes has created an imbalance in knowledge and discussion of global warming.

For further information please contact: Dr. Andrew Jamison or Lin Gan, Research Policy Institute, University of Lund, Box 2017, S-220 02 Lund, Sweden. Tel: 46 46 107622. Fax: 46 46 146986. — ■



WICEM II

The second World Industry Conference on Environmental Management—WICEM II—will be held from 9-12 April in Rotterdam, the Netherlands.

About 500 world business leaders are expected to attend the conference, which will be addressed by a number of international leaders in the environment debate, including: Gro Harlem Brundt-

land, Prime Minister of Norway; Maurice Strong, Secretary-General of the United Nations Conference on Environment and Development (UNCED); and Mostafa K. Tolba, Executive Director of the United Nations Environment Programme (UNEP).

The conference sponsor is the International Chamber of Commerce. The event will address: energy efficiency and global warming; market-oriented concepts of pollution control; environmental auditing; and the transfer of environmental technology to ensure a level playing field for countries of the North and South.

For further information, please contact: Mr. Paul J. S. Bond, Director Communications, International Chamber of Commerce, 38 Cours Albert 1er, 75008 Paris, France, Fax: 47-2 58 18 75. — ■

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Urgent Need to Transfer Environmentally Sound Technologies

A chain of environmental events looms ominously over the development prospects of rich and poor countries alike.

Climate change and global warming, depletion of the Earth's ozone layer and severe encroachments on nature's biodiversity are unwelcome facts of life which to a greater or lesser degree already challenge the way individuals, communities and nations go about their daily business.

Although opinions vary as to the seriousness of these threats and the pace at which they are proceeding, few oppose the view that the damage being inflicted on the environment is partly irreversible, and that the harmful practices of one or a few nations can jeopardize the well-being of all. These environmental problems ignore boundaries and there is an emerging international scientific and political consensus that remedies must be applied on a global scale. There is also an enlightened international debate on the need to transfer resources—financial, technological, and otherwise—so that the poorest members of the international community may share meaningfully in safeguards against further damaging incursions on the planet's common heritage.

Responsibility

At the present time, the industrialized world generates the bulk of greenhouse gases and other environmentally harmful byproducts and also controls the most advanced technologies and processes by which pollution could be contained. They have the financial and

other means to clean up their own industries but cannot address the totality of the global threat without sharing their capacities with others. Failure to share will condemn rapidly industrializing third world countries, and the Earth's upper atmosphere, to continued assault from dirty manufacturing and other processes. Given the rate of third world population growth and demand for the products of western-style development, the long-term environmental consequences of such inaction could be calamitous.

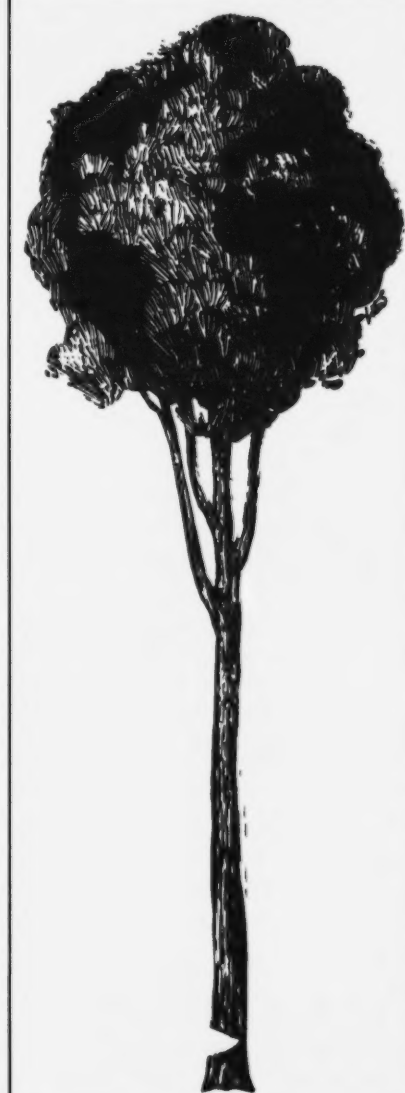
Prevention pays

There is an urgent need for a new paradigm for development based on the political will of industrialized and developing countries alike to reassess lifestyles in the light of national priorities and the sustainability of the planet's support systems. Economic and social behaviour at national and global levels should be based on environmental standards which recognize that "pollution prevention pays".

Global Dimension

The global dimension of today's environmental challenges, including climate change, ozone-layer depletion, and the loss of biodiversity, demands consensus and modes of fair co-operation based on International Conventions. (See story on Washington conference, *Update*, Pg. 5.)

The 1992 United Nations Conference on Environment and Development will be an important test of international progress towards the concept of envi-



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ronmentally sound and sustainable development articulated in the Report of the World Commission on Environment and Development: "Our Common Future".

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Realistic approaches

Although the negotiation of international conventions should be guided by the common responsibility of all countries for the state of the world's environment, developed countries must be held accountable for their greater share of the damage so far. Allowances must also be made for the limited capacity of most developing countries to allocate resources for global environmental preservation. Uniform regulations would be unrealistic. Expectations of the developing countries should be based on affordability and capacity to manage environmental challenges without sacrificing the right to economic growth. Sustainable economic development for these countries is an ambitious long-term process which can only be achieved incrementally with respect for social behaviour and needs, and scientific and technological capacity.

Technology access

Technologies which can slow down or even reverse environmental degradation of the atmosphere, biosphere and geosphere are available in principle, but are not easily accessible to developing countries. Developing countries need financial resources coupled with an endogenous capacity to make efficient use of these technologies, if and when they are transferred.

ESTA

Without a capacity for Environmentally Sound Technology Assessment (ESTA), the ability of developing countries to respond effectively to environmental concerns, at home or internationally, will remain limited.

ESTA was the substantive theme of the Intergovernmental Committee (IGC) in 1989, and an overview of the resulting analysis is contained in the report of the Secretary-General to the IGC's approaching 11th session (22 April-3 May).

The report of the Secretary-General calls for:

- a consensus on modes of fair co-operation between States to cope with the growing environmental crisis; and
- international environmental conventions which reflect the involvement of developing countries as true partners

Research Network

One suggested approach to collaboration between rich and poor nations is the establishment of an international network of environmental research centres. The Secretary-General's report to the IGC proposes that each centre could specialize in a particular field targeted by global conventions.

These specializations could include: chlorofluorocarbons and substitutes; cleaner energy forms and conservation; biological diversity, forestation and other biological production systems. The network would be modelled loosely on the existing Consultative Group for International Agricultural Research (CGIAR), with regional institutes functioning as laboratories or field stations rather than "think tanks". The objective would be to have 70-80 per cent regional scientific staff and a 20-30 per cent international complement to add a global perspective and help build endogenous capacity.



in the environmental responses necessary.

This partnership would include access by developing countries to environmentally sound technologies on favourable terms, and help to develop an endogenous capacity to:

- make informed technology choices;
- properly apply and manage environmentally sound technologies; and
- generate third world research and development capabilities. ■



Funding

Tentative cost calculations based on international environmental agreements, existing or under negotiation, suggest that to meet their share of global obligations developing countries would need to find:

- some \$400 million a year for the substitution of chlorofluorocarbons;
- up to \$7 billion over the next 10 years to eliminate all ozone-depleting chemicals in their preserve;
- \$10 to \$15 billion a year for a reasonable reduction in deforestation and reforestation; and
- a significant share of the estimated \$350 billion needed worldwide to cut man-made greenhouse gas emissions such as carbon dioxide and methane. The aim is to reduce these emissions by 60 per cent by the year 2005.

Congress

The International Organization of Consumers Unions (IOCU) will hold its 13th World Congress in Hong Kong from 8-12 July.

For registration information please contact: IOCU World Congress, Congress Secretariat, 250-A Jalan Air Itam, 10460 Penang, Malaysia. Fax: 60-4 376955. ■

Removing Barriers to Environmentally Sound Technology Transfers

In October of 1989, the US Environmental Protection Agency established an advisory board to guide government officials on ways of facilitating the transfer of environmental technologies to developing and Eastern European countries.

The International Environmental Technology Transfer Advisory Board (IETTAB) heard extensive testimony from persons in the US Government, industry and international and multilateral organizations, and released its final report in January.

The following is extracted from the Board's overview, which will appear with greater elaboration in the forthcoming *ATAS Bulletin* on Environmentally Sound Technology Assessment (ESTA).

Technology transfer covers a host of activities, commercial and otherwise, involving the international flow of technical research, knowledge, training, studies, processes, equipment and hardware. These activities cut a wide swath through foreign trade, international economic assistance and global environmental protection.

Although the IETTAB's mission confines the Board's attention to technology directed toward environmental protection and transfer to developing and Eastern European countries, the enter-

prise at hand is broad. Every agency of government with responsibilities touching on diplomacy, trade, foreign economic and social assistance, science, engineering, international finance and global environmental protection is engaged. Moreover, thousands of private organizations are directly and continuously involved in technology-transfer transactions. Finally, the technology of interest ranges from the simple to the complex, all requiring (or at least deserving of) careful planning, appropriate funding arrangements and assiduous follow-up.

Fresh opportunities

The matter we are concerned with is not new; much of the economic recovery of Europe and Japan after World War II reflects, in the broadest context, US technology transfer. New opportunities for developing technology into an important tool in achieving sustainable development are provided by changes in the international perspective for viewing environmental technology, fresh opportunities for both private-sector firms and public-sector agencies and evolving Federal responsibilities for global environmental protection.

There is a growing demand from both Eastern Europe and the developing

world for information on environmental technologies and for technical expertise. There will be increasing pressures on the US EPA to address a broad range of international environmental problems related to sustainable economic progress and requiring technology assistance and transfer.

Several types of technology transfer can affect environmental quality, even though that may not be their primary goal. These include technology transfers:

- conducted by the private sector in response to indigenous demand;
- intended to meet economic, health, environmental or social development needs which, although provided by the private sector, involve considerable US Government and host-government negotiation and some US Government assistance; and
- explicitly directed toward international environmental protection, which often entails a prominent US Government role in defining the need and in facilitating financing and implementation.

Although both commercial trade and economic assistance frequently have impacts on local, regional, and global environments, it is this third category of technology transfers which calls for EPA to play a leading policy role.

Rationale

Global priorities have shifted dramatically in the last few years. Since World War II many countries have been preoccupied with national security and East-West tensions, but in the coming years the focus is more likely to be on economic development and environmental protection. Thus, the leaders of the industrialized world, meeting in Houston in the summer of 1990, declared, "Environmental challenges such as climate change, ozone depletion, deforestation, marine pollution and loss of biological diversity require closer and more effective international cooperation and concrete action. We as industrialized countries have an obligation to be leaders in meeting these challenges."

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Third World Sources

Although industrialized countries consume a disproportionately large share of the world's resources, the developing world's share of global environmental damage is growing.

Developing countries use 43 per cent of the world's chlorofluorocarbons, and although they are responsible for less than 25 per cent of all fossil-fuel-based CO₂ emissions, that share can be expected to grow significantly with population growth and demand for higher living standards.

Rice paddies and domestic cattle, the basis for food supplies for more than two billion people in the developing world, are two of the world's major sources of methane, and the extensive use of fertilizers and pesticides are having negative impacts on land and water resources and on the health of farm communities. Accelerated industrialization and urbanization in some nations are also placing heavy pressure on their natural resource base.

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(Houston Economic Declaration, 1990 Economic Summit of Industrialized Nations, 11 July 1990.)

The task of planning for international economic development is more complicated than it was only a generation ago when environmental protection hardly received attention. Compounding present complexities is the need to address not simply an array of discrete, albeit knotty, problems, but rather a troika of intertwining, mutually reinforcing issues: environment, economic development and population growth. As if this were not enough, it has become clear that the development path taken by any particular country can affect the inhabitants of other nations.

The quest

Industrialized and industrializing nations alike are facing a great challenge: to contrive and implement development strategies that will maintain robust economic growth without exacerbating already serious national and local environmental problems, without increasing the risk of grave, irreversible regional and global ecological changes. This is the quest for sustainable development.

Sustainable development, according to the Brundtland Commission, "meets the needs of the present without com-

promising the ability of future generations to meet their own needs." Fundamental to the IETTAB's mission is a conviction that, for decades to come, the transfer of developed-world technology to transforming and developing economies will be a key to global environmental protection and, thus, to sustainable international development.

Thorny issue

Although technology can play an essential role in global environmental protection, it is also a thorny issue in

North-South discourse. Developing countries want access to technologies to address environmental problems, but only on terms compatible with their continued economic growth.

An international solution is evolving to address ozone depletion, formal international negotiations on a framework agreement on climate change have started, and preparations are now in train for the UN 1992 Conference on Environment and Development to address global environmental issues in general. These negotiations, together with the possibility that the next GATT round will be a "green" round, provide further justification for reviewing the current US Government philosophy and strategy of international environmental technology transfer. ■



Endogenous Capacity

Endogenous capacity is at the root of sustainable development and ultimately determines a nation's ability to absorb change, environmental or otherwise.

The United Nations Advisory Committee on Science and Technology recently identified four orders of capacity as follows:

- the ability to make informed judgements on science and technology matters;
- the selection and utilization of technologies;
- the adaptation and generation of technologies; and
- the creation of new technologies.

As yet, however, the development of endogenous capacity has little real depth in most developing nations, and quantity and prestige often take precedence over the quality of the manpower developed and the socio-economic uses to which it is put. The Intergovernmental Committee for Science and Technology has urged policy makers to revise their approach to technical co-operation by involving a broad-based coalition of stakeholders in the national economy in dialogues aimed at determining realistic priorities for development.

ATAS News is a regular supplement to the Update newsletter of the UN Centre for Science and Technology for Development (UNCSTD). Its objectives are to inform scientists and planners of CSTD's activities in technology assessment (TA), to serve as an information medium for the ATAS Technology Assessment Network (TAN) and to highlight the implications of new technologies for developing countries. ATAS News offers readers an open forum to address these and related issues at the national, regional and international levels. Submissions for publication are welcome.

Newsworthy articles, special reports, and photographs and other illustrative material should be sent to: ATAS Cluster, UNCSTD, 1 U.N. Plaza, N.Y., N.Y. 10017, USA. Telex 232422 UNHUR and 62450 UNATIONS. Cable, UNATIONS NEW YORK. Teletex (212) 6634118.

ATAS News is edited by Ian Steele.



Brian Lies

Energy Future at Crossroads

The international community took its first formal step in February towards a global jurisdiction over industrial and other emissions threatening the earth's life support systems.

Governments of 130 nations gathered in Washington for the first session of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, raising hopes that a meaningful document will be available for signature in 1992 when the United Nations Conference on Environment and Development convenes at Rio de Janeiro.

The session was opened by Dr. Antoine Blanca, United Nations Director-General for Development and International Economic Co-operation, who told delegations that the only way to preserve the planet was to remove the barriers which separate peoples and nations. There was a need, he said, to deal not only with the symptoms of climate change, but also with its causes by rethinking today's wasteful style of living.

Dr. Blanca described the meeting as a response to war between people and the planet. He said a framework convention on climate change would be the keystone for a new global order based on justice, equity and environmentally sound development.

Delegations took particular note of a statement by Mr. Michael R. Deland, Chairman of the White House Council on Environmental Quality, that the United States Government would take action to hold national greenhouse gas emissions at or below 1987 levels in the year 2000. The United States is responsible for some 25 per cent of global carbon dioxide emissions and a 15 per cent increase in that level has been forecast within the decade. Mr. Deland said that climate research in the United

States had increased five-fold since 1989 and the Government would be seeking \$1.2 billion for that purpose in the coming fiscal year. He said President George Bush had committed himself "to work openly, diligently and respectfully towards achieving the goal of completing a climate change convention in time for its signature at the United Nations Conference on Environment and Development in June 1992".

Major transition

Mr. Nitin Desai, Deputy Secretary-General of UNCED, told delegates that the negotiating session signified that discussion of climate change had gone beyond diagnosis and analysis to elicit specific government commitments.

"The possible responses to the issue also mark a major transition", he said. "The actions required are not merely environmental in nature. They go to the core of the economy and impinge on the mainsprings of the growth mechanism. Indeed, while carbon dioxide emission and greenhouse gas targets, energy efficiency goals, biomass sinks and similar measures are important, they will have to be accompanied by a deeper reconsideration of allied areas of policy. The debate on climate change has given new relevance to the classical problems of the development debate: global equity, indebtedness, poverty, terms of trade, protectionism, lifestyles, consumption patterns and population growth".

Dr. Mostafa K. Tolba, Executive Director of UNEP, identified two core issues—costs and the transfer of technology—which he said could not be avoided in negotiations for a convention. He said additional sources of funding would be needed to help developing

An Island Viewpoint

The Pacific island Republic of Nauru joined with 20 other low-lying coastal and small island states to make its voice heard in Washington.

Speaking as a member of the Alliance of Small Island States (AOSIS), Nauru urged the committee to consider the "most immediate known risks" which small island nations faced from global warming and rising sea levels: "Innocent people should never be asked to compromise their physical and cultural survival. We feel that a weak climate convention—one that lacks effective commitments and specific timetables—would be worse by far than no convention at all. The illusion of progress will sap the will for genuine progress. — ■

countries leapfrog the use of polluting technologies and he said that negotiations for a convention must be based on equity between nations of the North and South. Dr. Tolba said that any actions expected of the developing countries to protect the global environment should not be at the expense of their economic development.

At a press conference following the first session, the chairman of the negotiating committee, Mr. Jean Ripert, said he was confident that a convention could be ready for signature within 12 months provided there was political will to find solutions to problems already detailed. He said there would be difficulties along the way but the task was feasible.

Mr. Ripert said that the second session of the Negotiating Committee would be held at Nairobi in June. — ■

Negotiating a Climatic Imperative

By G. O. P. Obasi

The effort to negotiate a global convention on climate change is one of mankind's great endeavours.

The inherent linkages between climate and the habitability of our planet are now well recognized and a convention would help to ensure that the planet Earth continues to provide a home for the life it has nurtured.

It was the first World Climate Conference in 1979 which drew attention to the linkages and to the possible implications of a changing climate, and even then, there was a clarion call for actions to be taken. Much more has been learned since then, primarily through the activities related to the World Climate Programme which the World Meteorological Organization (WMO) established after organizing that conference. The WMO-UNEP Intergovernmental Panel on Climate Change (IPCC) has brought into sharper focus the scientific assessment, impacts and policy responses connected with the subject. The IPCC's first assessment report was considered by the Second World Climate Conference which met last year and it crystallized the scientific and technical consensus which has emerged concerning the nature of the situation we face. The Ministerial Declaration of the Conference further consolidated the political will, as expressed by 908 delegates from 137 countries. It called for immediate action, recognizing that the lack of full scientific certainty was no reason to postpone cost-effective measures to prevent environmental degradation.

Close links

In line with its recognition of the need for co-ordination, WMO also maintains close links with the Preparatory Committee and with the Secretariat for the United Nations Conference on Environment and Development (UNCED). We believe that UNCED provides the prime intergovernmental opportunity to explore the interactions and feedbacks among the components of the Earth/atmosphere system. These components are well reflected in the topics covered by the Preparatory Commit-

tee's Working Parties, including the atmosphere, water, oceans, land, deserts, forests, human societies and economic activity. While WMO's expertise lies in exploring the components associated with atmospheric science, operational hydrology and physical oceanography, we realize that we do so only to enhance understanding of the whole, and we know that understanding the complex interactions between components of the Earth's climate system may be at least as important as understanding each component alone. Because of this, none of us can work in isolation. WMO will work with all agencies whose work is related to ours and dedicated to advancing civilization and improving the welfare of humankind.

Shared concerns

It was due to similar concern for the welfare of humankind that the United Nations General Assembly set into motion the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change. The Committee's first session was attended by delegates from 130 nations at Washington (4-14 February).

In the negotiations ahead debate will centre on the collective wishes and concerns of the vast majority of nations, and WMO stands ready to support this process with technical and secretariat help to: define climate, identify research priorities and monitoring needs; collect, analyse and interpret data; as well as train nationals of developing countries who need skills and methods to study and understand the atmosphere. WMO will also provide administrative support for negotiating sessions.

As the Negotiating Committee proceeds with the consideration of nuances of legal phrases and concepts, there will be demands for more accurate and greater volumes of knowledge. While we have made much progress in our knowledge of the atmosphere and related areas in the recent past, much of our present knowledge rests upon observations made in the time of our fathers and grandfathers. It is essential therefore that provision be made in the proposed convention to acquire the

knowledge which succeeding generations will need. Hence adequate support must be given to such programmes as the World Ocean Circulation Experiment, the Global Atmosphere Watch and the Global Climate Observing System. The latter was recommended by the Second World Climate Conference and is proposed as a joint effort of agencies, institutions and organizations which are responsible for large- or global-scale observing systems, including satellite systems.

I shall also be submitting proposals to the Eleventh World Meteorological Congress in May 1991 on ways in which WMO might further contribute to these efforts.

The negotiations set in motion by the Intergovernmental Negotiating Committee could be among the most far-reaching ever for socio-economic development and the future health of the planet, indeed for global security and survival itself. While the negotiations will be about climate change and protection of the atmosphere, they will also be about fundamental global changes in energy policies and practices. While they concern environment, they will also address the use of the world's forests, tropical to boreal. While they deal with

(Cont. Pg. 7)



Professor Obasi

A Chance for Action

The United Nations Conference on Environment and Development scheduled for 1992 offers the world an opportunity to move beyond rhetoric to real action. Mohamed T. El-Ashry told senior UN officials in New York recently.

Mr. El-Ashry, senior Vice President of the World Resources Institute in Washington, identified five major economic, demographic and political forces driving natural resource and environmental degradation worldwide. They were:

- Unprecedented levels of per capita resource consumption;
- Rapid population growth;
- Inappropriate land tenure, which discouraged rural people from investing in sustainable agricultural practices;
- The debt burden, which encouraged resource depletion to lift export revenues, and;
- Energy policies, which encouraged inefficiency.

Mr. El-Ashry said that environmental considerations must be brought into the mainstream of economic decision making and that "massive" financial resources would be needed to help developing countries meet the challenges ahead.

"A sharp increase in the flow to the South of new financing and new technology is essential for tackling the interrelated problems of poverty, environmental degradation, and rapid population growth", he said. "So is greatly reducing the external debt burdens of developing countries and easing the trade restrictions which paralyse them.... Effective new programmes should also be established to provide technical assistance, scientific and managerial training, and access to data and information, to help enhance the capacity of developing countries to manage their environmental challenges." ■

Climate Imperative (Cont. from Pg. 6)

global warming, they must also come to grips with low-cost transfers of energy-efficient technologies to developing countries and with the funding of development pathways with low greenhouse gas emissions. The negotiations will therefore deal with elements which also serve as the underpinnings for global security and national development.

The early 1990s will be a critical period and it is my fervent hope that nations, as they embark on their negotiations for a Convention on Climate Change, will exercise the necessary political will to surmount obstacles that might lie ahead, and arrive at a suitable consensus. It is my further hope that this consensus will lead to a framework convention which is ready for signature at UNCED in 1992—a convention which will help to ensure a sound future for our planet and the well-being of present and future generations. ■

Professor G. O. P. Obasi is the Secretary-General of the World Meteorological Organization.



The Centre for Environmental Management and Planning (CEMP) in Aberdeen, Scotland, will host the 12th International Seminar on Environmental Assessment and Management from 7-20 July.

The seminar is being sponsored by the World Health Organization (WHO) and the United Nations Development Programme (UNDP), and is open to government administrators, planners, academics, consultants, developers, industrialists, scientists and others who feel that a better understanding of environmental management would benefit their work.

The Centre will also hold an intensive training course on Environmental Assessment and Management from 30 June to 20 September.

CEMP is an environmental division of Aberdeen University Research and Industrial Services (AURIS) Ltd. It provides research, training, consultancy and environmental information services

Hydropower Conference

Hydrowater is a national resource which is non-polluting, renewable and essentially free, but the broad picture of energy production remains one of large-scale reliance on oil or, in some countries, nuclear power sources.

A number of developing countries have made good use of mini-hydro stations, and there are energy experts in Europe who are starting to ask why the European Community does not make greater use of their hydropower resources, for the benefit of local communities in rural and mountain areas in particular.

An international conference and exhibition on mini-hydropower will be held in Nice, France, from 12-15 June.

For further information please write to: Hydroenergia Conference Secretariat, Agence Francaise pour la Maitrise de l'Energie, 500, route des Lucioles, Sophia-Antipolis, 06565 Valbonne, Cedex-France. Tel: 33 93957910. Telex: 461357. Fax: 33 93 65 31 96. ■

for a wide range of clients including WHO, UNEP, ILO, the Department of Environment (UK) and both public and private companies. CEMP has recently been granted status as a WHO Collaborating Centre.

For further information, please contact Mrs. Sandra M. Ralston, Conference and Training Manager, Centre for Environmental Management and Planning, 23 St. Machar Drive, Old Aberdeen AB2 1RY Scotland, UK. Fax: 0224 487658. ■

Wildlife Meeting

An international symposium on Human Influences on Endangered Wildlife Species in Africa has been rescheduled for 2-5 December in Kampala, Uganda.

For further information please contact Dr. Eric L. Edroma, Uganda National Parks, P.O. Box 3530, Kampala, Uganda. Fax: (256 41) 245580. ■

Solar Water Heating on Island of Cyprus

The Mediterranean island of Cyprus has a 30-year history of solar power use and about one million square metres of solar collectors are installed throughout the country. Dr. T. Drakos, Director of the Higher Technical Institute in Nicosia, reports that 90 per cent of the island's houses and 50 per cent of its hotels use solar power for water heating. The systems are manufactured locally and are also exported. Dr. Drakos says that solar power currently displaces 175 million kwhr of electricity a year—4.5 per cent of the island's annual primary energy use.

Dr. Drakos' Institute is currently testing a solar prototype to power hospital X-ray equipment. It is doing this research and development on behalf of the World Health Organization (WHO), which is interested in reliable alternative power systems for hospitals in the developing world. The prototype has been used at the Nicosia General Hospital since 1989 without resort to other electrical backup.

The Institute is also working on a solar powered water treatment system to recycle domestic "grey" water which is discharged from showers, wash-basins and washing machines. The objective is to conserve available water and reduce ground pollution.

"It has been shown in each of these cases that the use of environmentally sound technologies can result not only in ecologically acceptable systems, but also in economical systems", said Dr. Drakos.

"Invariably this is achieved by the use

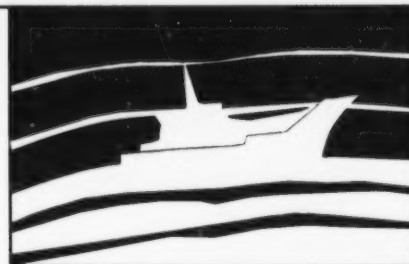
of low-technology systems even though their design and manufacture may involve high technology. The key to cost effectiveness lies in simplicity and system optimisation....The object is not to discover new technologies but to establish clear routes to the deployment of appropriate and environmentally sound technologies, tailored to suit local conditions."

Environmental Engineering

The International Institute for Hydraulic and Environmental Engineering at Delft in the Netherlands has announced its regular and short courses for 1991-1992.

Among the courses offered are: the 27th International Seminar on Port Management (14 May-21 June); the Second Senior Advanced Course on Appropriate Modernization and Management of Irrigation Systems (14 May-21 June); the International Course on Anaerobic Waste Water Treatment (26 June-7 August); and the Master of Science Course on Transportation and Road Engineering in Developing Countries (TREND) from October 1991 to September 1993.

Brochures and other information can be obtained through: The Registrar of IHE, P.O. Box 3015, 2601 DA Delft, The Netherlands. Fax: 31 15 122921.



Workshop in Hawaii

Maritime countries are invited to send experts to a series of marine geology workshops to be held at the University of Hawaii from 10-31 August.

The main objective of the workshops is to present state-of-the-art techniques and methodologies which are used to investigate energy and mineral resources in mid-ocean and convergent margin regions. The geologic and tectonic setting of the entire Pacific Basin and potential offshore areas will be reviewed. Based on the ideas and methodologies presented it is anticipated that participants will be able to conceptualize and design research and management projects and programmes to develop offshore resources in an orderly and environmentally acceptable way.

The workshops are being sponsored by the U.S. Geological Survey and the University of Hawaii in cooperation with the United Nations Development Programme (UNDP).

For further information, please contact: Office of International Geology Training Section, U.S. Geological Survey, 917 National Center, Reston, VA 22092, U.S.A.

For further information, contact:

Centre for Science and Technology
for Development
United Nations
New York, New York 10017
United States of America
Telephone: (212) 963-8435
Fax: (212) 963-1267
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"...A periodic newsletter to keep national authorities, United Nations organizations and inter-governmental and non-governmental organizations informed of the progress made and related developments regarding the implementation of the Vienna Programme of Action" (IGC resolution 5(II)).

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